

STUDY DESCRIPTION RR-2
North Fork Stanislaus River Sourgrass Run
Whitewater Boating Use Evaluation
June 3, 2026

This Study Description is developed to inform information gaps identified by Calaveras County Water District (CCWD) for the relicensing of its North Fork Stanislaus River Hydroelectric Project (Project).¹

STUDY AREA

The Study Area includes the 5-mile-long, Class IV+ Sourgrass whitewater boating run on the North Fork Stanislaus River (NFSR). The put-in for the run is at Sourgrass Bridge on Boards Crossing Road (River Mile [RM] 16.2). The primary take-out is at Calaveras Big Trees State Park at the bridge over the NFSR along Walter W. Smith Parkway (RM 11.2). A secondary takeout is available downstream of Calaveras Big Trees State Park upstream of McKays Point Reservoir off of McKays Point Road (Forest Road 5N63) (RM 8.9).

STUDY METHODS

Excluding Data Summary Development (i.e., Reporting), the Study consists of a Level 1 Assessment: Desktop Analysis (Step 1) and may include a Level 2 Assessment: Field Reconnaissance and Focus Group (Step 2) and a Level 3 Assessment: Whitewater Boating Flow Study (Step 3). The three-phased assessment follows the general approach contained in *Flows and Recreation: A Guide to Studies for River Professionals* (Whittaker et al. 2005). The phased approach is designed to increase study resolution as investigations progress from one level to the next. Advancing to more intensive study levels is dependent on results in the prior study level. CCWD will conduct Step 1 and will proceed to Steps 2 and possibly Step 3 if CCWD determines that the results of the previous level assessment indicate further assessment is needed. Progression to the next level of assessment will not occur if results from the current level indicate the study reach does not meet the criteria for advancement to the next level of assessment.

Step 1 - Level 1 Assessment: Desktop Analysis

Level 1 investigation will include literature reviews, structured interviews, summary of hydrology, estimated boating-days under existing Project operations, characterization of historical spill events, physical description of the river channel, and descriptions of existing river access locations and river uses.

¹ In addition to the details provided in this study description, study implementation will also follow the "*Concepts and Practices Applicable to All Relicensing Studies*" developed by CCWD.

Literature Review

In the Pre-Application Document (PAD), CCWD will report results of its whitewater boating literature review including whitewater guidebooks, electronic whitewater guidebooks available online, internet searches for trip reports, and relevant information provided by interested parties in response to CCWD's PAD Questionnaire for existing, relevant, and reasonably available information.

Structured Interviews

CCWD will conduct structured interviews with individuals in the whitewater boating community with knowledge of the study reach. The interviews will focus on individuals' knowledge of the study reach, any dates with direct observations of the study reach, opinion on whitewater boating difficulty, estimates of acceptable boatable flow ranges, and type of watercraft used. CCWD will request structured interview candidates from American Whitewater (AW), National Park Service (NPS), the United States Department of Agriculture, Forest Service (Forest Service), and known commercial rafting outfitters. Draft questions for the structured interviews are in Attachment A.

Hydrology Analysis

CCWD will analyze the recent hydrology of the Study Reach including the annual frequency and timing of unplanned and planned spill events at New Spicer Meadows Dam. The summary will also include a description of typical planned spill events, including the predictability, timing, and reason for planned spill events, as applicable. The hydrology analysis will:

- Identify, map, and characterize existing stream gaging stations in the NFSR, including location, equipment, and data collection capabilities.
- Provide graphs of average hourly flow for representative wet, normal, and dry water year (WY) types.
- Describe how the Project influences flows in the study reach on a monthly, daily, and hourly basis.
- Characterize planned and unplanned historical spill events from monthly, daily, and hourly perspectives.
- Provide a table summarizing "boating-day" opportunities² by month based on hourly data, if a boatable flow range is known/identified.

² A "boating-day" opportunity is any flow within the acceptable flow range that is continuously present in the channel during 8 hours of daylight.

Summarize Whitewater Boating Opportunity.

Based on the information gathered from the literature review, structured interviews, and hydrology analysis, CCWD will describe the whitewater boating opportunity on the study reach. CCWD will describe the following for the study reach, as applicable:

- Existing whitewater use types and levels.
- Overall river channel access opportunities and constraints with specific put-in and takeout locations identified and described.
- Whitewater boating difficulty using the International Scale of Difficulty grading system.³
- Whitewater boating portage and safety considerations.
- Types of watercraft used and timing (i.e., boating season).
- Acceptable boatable flow range.
- Physical characteristics of river.
- Availability of flow information.
- “Boating-day” opportunities under existing Project operations within the identified acceptable boatable flow range using the historical daily flow records.

Level 1 Data Summary

Progression to Step 2, Level 2 Assessment, will be based on results from Step 1. The Level 1 decision criterion to determine if the study should progress to the Level 2 Assessment consists of the following question:

- Are acceptable boatable flow ranges, in particular the minimum acceptable flow, adequately identified for relicensing purposes?⁴

CCWD will determine if Level 1 data adequately addresses the evaluation criterion (i.e., no further study/assessment is needed to identify the range of acceptable boating flows) or if additional information is needed to address the evaluation criterion (i.e., proceed with Step 2, Level 2 Assessment).

³ Refer to: https://www.americanwhitewater.org/content/Wiki/safety:internation_scale_of_river_difficulty.

⁴ Besides determining the acceptable range of boating flows, Level 1 criteria in Whittaker et al. 2005, include determining: 1) if there is a whitewater boating opportunity; and 2) if the opportunity is significantly affected by Project operations. These criteria have been removed because as the Sourgrass Run is an established, known whitewater boating run that receives both private boating use and commercial rafting use and the Project operations affect the whitewater boating opportunity. Therefore, these criteria have been met.

Step 2 - Level 2 Assessment: Field Reconnaissance and Focus Group

Field Reconnaissance

Level 2 Assessment, if determined necessary by CCWD, will evaluate on-site river access and involve land-based observation of flow in the study reach. The objective is to assess the current condition of whitewater boating put-in and take-outs and observe flow in the study reach to evaluate navigability, whitewater boating difficulty, and to better estimate a boatable flow range for Level 3 Assessment. River access, regional uniqueness and significance, and safety concerns will also be evaluated during the field reconnaissance.

Participants in the Level 2 reconnaissance will be identified in advance of the field reconnaissance by CCWD in consultation with Forest Service (Stanislaus National Forest or STF), NPS, AW, and STF-permitted commercial rafting outfitters, should they choose to participate in the identification process. The field reconnaissance will include up to six participants for site visit logistics and to facilitate focus group discussion. Participants in the field reconnaissance will receive a brief overview of the relicensing process, the study plan process within the broader relicensing, objectives of the field reconnaissance, and specific criteria to evaluate, as listed below. CCWD will identify areas of interest for the field reconnaissance visit based on information from Step 1. Participants are responsible for their safety as part of this Level 2 flow assessment.

Focus Group

The field reconnaissance will conclude with structured focus groups with whitewater boating participants. Focus group questions will prompt discussion on navigability, whitewater difficulty, suitable range of flows for whitewater boating for watercrafts that use/may use the reach, river access, safety, other areas of concern, and uniqueness of the study reach compared to other opportunities in the region.

Level 2 Data Summary

The Level 2 Data Summary will summarize findings from the field reconnaissance and focus group. The Data Summary will include notes from group discussions at individual field locations during the site reconnaissance, opinions expressed in focus groups, river access locations, and potential resource issues identified.

Progression to Step 3, Level 3 Assessment, will be based on results from the Level 2 Data Summary. The Level 2 decision criteria to determine if the study should progress to the Level 3 Assessment include:

- Are acceptable boatable flow ranges, in particular the minimum acceptable flow, adequately identified for relicensing purposes?
- Can a controlled flow study be conducted safely?

CCWD will determine if the Level 2 Data Summary adequately addresses the evaluation criteria (i.e., no further study/assessment is needed) or if additional information is needed to refine the acceptable boatable flow range (i.e., proceed with Level 3 Assessment).

Step 3 - Level 3 Assessment: Whitewater Boating Flow Study

Flow Assessments

One of the primary goals of the Level 3 Assessment is to refine the acceptable whitewater boating flow range and, in particular the minimum acceptable flow of the study reach. The Level 3 flow evaluation will consist of a team of up to six boaters paddling up to three flows.

CCWD will determine the number and flow levels to be studied based on the estimated flow ranges identified in Steps 1 and 2 and in consultation with Forest Service, NPS, AW, and STF-permitted commercial rafting outfitters who participated in the Level 1 and 2 Assessments. Scheduling of the flow study will, to the extent feasible, take advantage of opportunistic flows. After each study flow, participants will complete a single flow evaluation form and participate in a structured focus group. If more than one study flow is conducted on a study reach, after completion of all study flows, whitewater boaters will complete a comparative flow evaluation form and participate in a final structured focus group. Draft questions for the single flow and comparative flow evaluation forms and the focus group will be sent to STF, AW, and NPS for review and comment. Whitewater boaters will be identified in advance by CCWD in consultation with Forest Service, NPS, AW, and STF-permitted commercial rafting outfitters, should they choose to participate in this identification process. Participants are responsible for their safety as part of this Level 3 flow assessment. CCWD will require liability waivers and will develop a safety plan prior to whitewater boaters getting on the river.

AW and STF-permitted commercial rafting outfitters will be responsible for determining if selected whitewater boating individuals possess the necessary skills, experience, and safety training to participate in the Level 3 Assessment. If more than one study flow is planned for a study reach, participants will need to commit to each flow evaluation for comparison purposes. A consistent team of participant boaters between Level 2 and Level 3 Assessments is necessary.

Level 3 Data Summary

The Level 3 flow evaluation will analyze the whitewater boaters' single flow and, if multiple flows are conducted, comparative flow evaluation forms as well as opinions expressed in focus group discussions. The analysis will refine the acceptable flow ranges identified for whitewater boating including the minimum acceptable flow. The Data Summary will also identify the overall whitewater difficulty and list significant rapids. Flow conditions and boating opportunities will be documented with photographs and/or video of significant rapids or key whitewater elements that are accessible within the study reach.

REPORTING

The Level 1 Data Summary and Level 2 and 3 data summaries, if Levels 2 and 3 are done, will be made available to interested parties as described in *Concepts and Practices Applicable to All Relicensing Studies*. Refer to the description above for the material to be included in each data summary.

SCHEDULE

Step 1 – Level 1 Assessment	February - May 2027
Step 1 – Level 1 Data Summary	June 2027
Step 2 – Level 2 Assessment	June - September 2027
Step 2 – Level 2 Data Summary	October 2027
Step 3 – Level 3 Assessment	February - September 2028
Step 3 – Level 3 Data Summary	October 2028

REFERENCES

Whittaker, D., B. Shelby, and J. Gangemi. 2005. *Flows and Recreation: A Guide to Studies for River Professionals*. Hydropower Reform Coalition, Washington, DC.

ATTACHMENT A

Level 1 Assessment Structured Interview Questions

General Boating Experience

1. How many years have you been whitewater boating?
2. How many times a year do you generally go whitewater boating?
3. Please indicate for each type of whitewater craft you use, the:
 - a. Frequency you use each compared to other craft (never/rarely/occasionally/frequently)
 - b. Years of experience you have with each craft
 - c. Whitewater skill level with that craft (Class II, III, IV, V, etc.)

Boating Experience on the Sourgrass Run

4. Please describe your history/interest in the Sourgrass Run.
5. How many years have you been boating the Sourgrass Run?
6. How many times per year do you boat the Sourgrass Run?
7. What are the beginning and end dates for the normal Sourgrass Run boating season?
8. What factors determine the beginning and end of the Sourgrass Run boating season?
9. Where are the primary and alternative, if any, put-in and take-out locations for the Sourgrass Run and are there any issues with these locations?
10. What type of watercraft are appropriate for the Sourgrass Run?
11. What is your preferred watercraft to boat the Sourgrass Run?
12. Please provide an estimate, to the best of your ability, of the dates, times, flow in cfs, and the acceptability of the flow, using the below scale, during your previous boating visits to the Sourgrass Run in your **preferred watercraft**.

When rating the acceptability of flow levels, please use flow-dependent characteristics that contribute to high quality trips (e.g., boatability, whitewater challenge, safety, aesthetics, pace).

<i>Acceptability Level Scale</i>						
<i>Totally Unacceptable</i>	<i>Moderately Unacceptable</i>	<i>Slightly Unacceptable</i>	<i>Marginal</i>	<i>Slightly Acceptable</i>	<i>Moderately Acceptable</i>	<i>Totally Acceptable</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>

Run	Watercraft	Date	River Time		Flow (cfs)	Acceptability (circle one)	Source of Flow Information
			On	Off			
1						1 2 3 4 5 6 7	
2						1 2 3 4 5 6 7	
3						1 2 3 4 5 6 7	

13. When planning a trip to the Sourgrass Run, where do you go to find information about flow levels and generally how far in advance do you last check the flow level?
14. Can you identify any significant rapids for the reaches you have boated? *Please provide a rapid name, location, and whitewater difficulty, if possible.*
15. Can you identify any significant play spots and/or portages for the reaches you have boated? *Please identify the play spot name and location, if possible.*
16. Can you identify any significant portages for the reaches you have boated? *Please identify the portage name and location, if possible.*
17. Are there specific rapids that determine the overall boatability of the Sourgrass Run? *Please identify the name and location of the rapids.*
18. Do you think there are safety concerns for whitewater recreation unique to the Sourgrass Run that are different from whitewater segments of similar difficulty? If **YES**, please describe.
19. What is the **acceptable flow range** (in cfs) for boating the Sourgrass Run? And, what are the factors that determine the lower and upper end of the **acceptable** flow range?
 ❖ *An “acceptable flow range” is a flow range that provides an experience that a majority of boaters with the necessary skills to boat the flow range would return to boat the reach.*

Question	Response	Factors that Determine the Flow
Watercraft Type		
Low End, Acceptable Flow (cfs)		
High End, Acceptable Flow (cfs)		

20. What is the **optimum flow range** (in cfs) for boating the Sourgrass Run? And, what are the factors that determine the lower and upper end of the **optimum** flow range?
 ❖ *An “optimal flow range” contains flow characteristics that will provide an optimum experience for the boaters with the skills necessary to whitewater boat the reach .*

Question	Response	Factors that Determine the Flow
Watercraft Type		
Low End, Optimum Flow (cfs)		
High End, Optimum Flow (cfs)		

21. How would you rate the Sourgrass Run relative to other areas below?

Other Areas	Much Worse	Worse	Similar	Better	Much Better
In Calaveras County	1	2	3	4	5
In Central California	1	2	3	4	5
In California	1	2	3	4	5
In Nation	1	2	3	4	5

22. Relative to the Sourgrass Run, what are comparable experiences in Central California?
23. Can you recommend other individuals we should contact to interview who have previously boated the Sourgrass Run? *Please provide their name, email, and phone number, if possible.*
24. Please provide any additional information you believe will help inform this study.